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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,518	03/01/2004	James L. Barnard	10,158	1047

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EXAMINER

PRINCE, FRED G

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,518

Applicant(s)

BARNARD, JAMES L.

Examiner

Fred Prince

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-9, 11, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 10, 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0304, 0604.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 1-6 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on August 26, 2005.

The arguments associated with the traversal are not considered persuasive for the reasons provided in the restriction/election requirement. Therefore the requirement is FINAL. Claims 7-13 will be examined.

Claim Objections

2. Claim 7 is objected to because of the following informalities: It appears that in line 17, "that" should be deleted as there is no additional text preceding the semicolon (;). Appropriate correction is required.

3. Claim 12 is objected to because of the following informalities: In line 7, it appears that "remainder" should be changed to "remaining". Appropriate correction is required.

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Lamb, III.

Lamb, III teaches in a process for treating wastewater by mixing the wastewater with biomass (52) to form a mixed liquor a first anaerobic region (54) and thereafter treating the mixed liquor in an aerobic region; the improvement comprising the step of:
a) diverting a slip to a second anaerobic region (62, 64, 66) wherein the mixed liquor is subjected to a lower flow rate (col. 9, lines 40-45) than in said first anaerobic region and thereafter returning the mixed liquor (74) from said second anaerobic region to said first anaerobic region.

7. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamb, III.

Lamb, III discloses flowing wastewater with organic components therein into a first anaerobic region (54) and mixing the wastewater therein with a microorganism biomass to form a mixed liquor; flowing a portion of the mixed liquor into a second anaerobic region (62, 64, 66) wherein said biomass ferments portions of said organic to produce volatile acids (col. 4, lines 67-68; col. 5, lines 1-4); returning liquid from said second anaerobic region (74) with said volatile acids to said first anaerobic region

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wherein phosphorus is released from the microorganisms (col. 2, lines 7-11; col. 8, lines 60-68; col. 9, lines 1-2) in said mixed liquor and volatile acids are associated with said microorganisms; flowing mixed liquor from said first anaerobic region to an aerobic region (24) wherein said volatile acids are metabolized by said microorganisms and phosphorus is absorbed by said microorganisms (col. 9, lines 2-6); thereafter transferring said mixed liquor (26) to a clarifier region (28) wherein clarified liquid separated from biomass; and returning at least a portion of the separated biomass (44) with phosphorus therein to said first anaerobic region, wherein the solids concentration in the second anaerobic region is greater than 7,000 mg/liter (Table 2). Lamb, III does not explicitly disclose that the acids produced are short chain fatty acids.

In any case, it is submitted that it is well known in that that short chain fatty acids are produced under anaerobic condition and are readily assimilated by microorganisms as they are excellent energy sources and electron donors (see, for example, US pat No 3,939,068 to Wendt et al. or US Pat No 4,696,746 to Ghosh et al.). Accordingly, it would have been readily obvious for the skilled artisan to have modified the process of Lamb, III such that it includes producing short chain fatty acids in order to, for example, produce acids that are readily assimilated by microorganisms as they are excellent energy sources and electron donors, as known in the art.

Per claim 9, Lamb, III does not disclose producing a biomass concentration of less than about 4000 mg/liter in the first anaerobic region. It is submitted that the use of a biomass concentration within the recited range lies in the realm of routine optimization

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of a process-effective variable and accordingly, is insufficient to patentably distinguish the instant invention over the prior art.

8. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamb et al. in view of Josse et al. (US Pat No 6,531,058).

Lamb, III is described above. Lamb, III does not disclose utilizing upward flow in the second aerobic region such that a biomass blanket is formed near the bottom to near an outflow.

Josse et al. disclose utilizing upward flow in an anaerobic region such that a biomass blanket is formed near the bottom to near an outflow (Fig. 5) in order to, for example, provide cleaner effluent, reduce energy requirements, and provide reliable performance. It would have been readily obvious for the skilled artisan to modify the process of Lamb, III such that it includes utilizing upward flow in an anaerobic region such that a biomass blanket is formed near the bottom to near an outflow in order to, for example, provide cleaner effluent, reduce energy requirements, and provide reliable performance, as suggested by Josse et al.

Allowable Subject Matter

9. Claims 10, 12, and 13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

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Per claim 10, while claim 7 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or fairly suggest modifying the process of Lamb, III such that it includes the combination of steps recited in claim 10. The instant invention provides the advantage of removing a high amount of phosphorus from the influent wastewater.

Per claims 12-13, while claim 11 is not patentable for the reasons provided above, in the examiner's opinion, the prior art fails to teach or fairly suggest modifying the process of Lamb, III such that it includes the combination of steps recited in claim 12. The instant invention provides the advantage of improving short chain fatty acid production.

Conclusion


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References are cited of interest to show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Prince whose telephone number is (571) 272-1165. The examiner can normally be reached on Monday-Thursday, 6:30-4:00; alt. Fridays 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Fred Prince
Primary Examiner
Art Unit 1724

fgp
9/19/05